CNETINST 5310.4E
OS121
19 JAN 2000

CNET INSTRUCTION 5310.4E

Subj: CNET SHORE MANPOWER REQUIREMENTS POLICY AND PROCEDURES

Ref: (a) OPNAVINST 1000.16J
(b) SECNAVINST 5010.1B
(c) Approved Staffing Guides/Standards

Encl: (1) General Shore Manpower Requirements Determination (SMRD) and Manpower Staffing Policies
(2) Preparation of the Master Schedule (MS) and Master Schedule Summary (MSS)
(3) Criteria and Procedures for Computation of Instructor Requirements
(4) Definitions

1. Purpose. To consolidate in a single instruction policies in regard to the determination, documentation, and utilization of manpower resources required to conduct efficient instruction in schools and courses of the Naval Education and Training Command (NAVEDTRACOM). It provides policy guidance and assigns responsibilities for conducting Shore Manpower Requirements Determinations (SMRDs) to determine minimum manpower requirements within NAVEDTRACOM. This instruction has been extensively revised and should be reviewed in its entirety.

2. Cancellation. CNETINST 5310.4D

3. Scope. The policies and procedures stated in this instruction apply to all NAVEDTRACOM schools and courses except those of Recruit Training Command, Interservice Training Review Organizations (ITRO), Flight Demonstration Squadron, and nuclear propulsion activities, all of which are covered by other programs.

4. Discussion. Reference (a) provides policy guidance and assigns responsibilities for conducting and implementing SMRDs. The Statement of Manpower Requirements (SMR), which is developed during the SMRD process, will identify the minimum manpower, including quantity and quality, required to accomplish assigned tasking. Reference (b) establishes that the Naval Audit Service will evaluate command compliance with the provisions of the SMRD program. Enclosure (1) provides general SMRD and manpower staffing policies guidance.

5. Background. The Navy must accomplish essential missions and functions with imposed fiscal, end-strength, and other constraints and achieve greater efficiency and productivity, particularly in the area of training. In view of this, NAVEDTRACOM must utilize the most stringent standardized instructor requirements formula possible, consistent with high quality instruction. The process of determining instructor requirements is based upon an approved, documented course of instruction, represented by the Master Schedule (MS) and the Master Schedule Summary (MSS). An MS and MSS shall be prepared for each group-paced course in accordance with the guidelines addressed in enclosure (2). Once the approved course has been documented on the MS and MSS, instructor requirements can be identified using the manpower requirements process outlined in enclosure (3). It is of paramount importance that the MS accurately reflects the approved course of instruction and that the MSS correctly documents the summarized data. Reference (c) contains other CNET-approved staffing standards by functional area. For use and application, contact CNET (OS121).

6. Policy

a. SMRDs will be conducted by the NAVEDTRACOM Management Engineering Teams (NAVEDTRAMETs) located in Norfolk and San Diego. The NAVEDTRAMETs will report to Chief of Naval Education and Training (CNET OS1) for policy and direction.

b. NAVEDTRAMETs will conduct SMRDs and supporting tasks in accordance with reference (a), as assigned, to include: develop and maintain staffing standards and guides; provide guidance in the maintenance and accuracy of Navy Integrated Training Resource Administration System II (NITRAS II) data elements for ratios, periods, and instructor cross-utilization; review student training plans with enlisted course managers; coordinate SMRD reporting requirements and results with the Navy Manpower Analysis Center (NAVMAC); develop and maintain manpower models; and conduct functional and advisory studies as directed.

c. Updates to existing SMRDs will occur periodically as required. In cases where manpower requirements have been determined as a Most Efficient Organization (MEO) under the Competitive Sourcing program, the SMRD process is not applicable for the duration of the Competitive Sourcing solicitation. However, Competitive Sourcing MEOs will be included as part of the SMRD SMR. Functions formally announced for Competitive Sourcing study will be included in the SMRD SMR reflecting authorized military and civilian manpower levels as identified in the announcement.

7. Reporting. To ensure prompt approval and implementation of SMRD findings, the following guidance is established:

a. Upon completion of an SMRD study, the SMRD Team Leader will out-brief the commanding officer or the designated activity representative. The SMRD draft SMR will be presented at this meeting. A copy of all findings will be provided to CNET and the functional commander.

b. The commanding officer will review the SMRD draft SMR and submit a request for any desired adjustments in writing to the appropriate NAVEDTRAMET within 2 weeks of the out-brief.

c. The NAVEDTRAMET will respond appropriately to requests for adjustment to the SMR and prepare a final report with all required documentation. The report will be forwarded via the functional commander with a copy to the activity. The functional commander will review the final report and forward to CNET with comments and recommendations within 30 days of receipt. Functional commander concurrence in the recommendations will be assumed in absence of a response within the specified time.

d. CNET will review the final report, adjudicate issues where disagreement exists between the activity and NAVEDTRAMET, and finalize the SMR. When approved, CNET will forward all required documentation to the Chief of Naval Operations. CNET will direct the activity, via the functional commander, to implement the SMR.

e. CNET program managers will review completed SMRDs in their area of responsibility. Program managers will indicate concurrence or non-concurrence with manpower requirements. If additional manpower requirements exist, program managers will request additional resources in the Program Objective Memorandum (POM) process. If requirements are emergent, program managers will identify lower priority programs from which resources may be reprogrammed. If excess funded authorizations are identified, program managers will recommend reallocation. CNET (OS1) will reprogram excess authorizations consistent with overall CNET priorities.

8. Responsibilities

a. CNET (OS1) will develop and publish an annual SMRD schedule not later than 60 days prior to the beginning of each fiscal year. Changes to the published schedule, or additional tasking for NAVEDTRAMETs, will be coordinated with CNET (OS1).

b. Immediate superiors in command (if applicable) will:

(1) Ensure maximum support and participation of all appropriate staff and subordinate activity personnel in the SMRD process.

(2) Provide program data as required, including MEO statements resulting from Competitive Sourcing studies.

(3) Implement approved SMRs to the limit of available resources, when directed by CNET.

c. All other CNET activities will:

(1) Participate as required in conducting manpower studies.

(2) Provide program data as required, including MEO statements resulting from Competitive Sourcing studies.

(3) Implement approved SMRs to the limit of available resources, when directed by CNET.

(4) Submit Automated Program Change Forms via CNET Program and Tracking System (CPATS) to request additional manpower funding justified by SMRD.

9. Action

a. This instruction is effective upon receipt.

b. Commanding officers of training activities shall ensure that a current instructor requirements computation form is maintained for each course of instruction as outlined in enclosure (3). These computations shall be updated to address revisions in course length, periods and ratios, frequency, and/or class size that will result in changes in instructor requirements. Enclosure (3) provides an example of a completed Instructor Computation Form.

c. Commanding officers of training activities shall establish monitoring procedures to ensure that the student/instructor ratio for each teaching situation recorded in the MS is, in fact, the highest such ratio possible without serious detriment to the quality and safety of training. These optimum ratios will be subject to periodic on-site inspection.

d. NAVEDTRACOM activities should ensure that a supporting MS for each group-paced course is available, and that periods of instruction and student/instructor ratios shown in the MSS agree with data utilized for instructor computation and in the NITRAS II system.

10. Definitions. Enclosure (4) is provided for information.

11. Forms. CNET 1540/12 and 5311/1 may be obtained via the internet from the CNET Homepage.

12. Reports. The reporting requirements contained in this instruction are exempt from reports control by SECNAVINST 5214.7.

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GENERAL SHORE MANPOWER REQUIREMENTS DETERMINATION (SMRD) AND MANPOWER STAFFING POLICIES

1. Training conducted outside of the normal 8-hour technical training day may be considered instructor collateral/watch duty and will not be identified for additional manpower requirements unless approved by the Curriculum Control Authority (CCA) and CNET. Commanding officers who opt to use the 6 plus 2 training schedule may do so providing there are no additional manpower requirements. Additionally, Master Schedules should not be revised to reflect the 6 plus 2 training day.

2. All personnel assigned to billets which are derived from the application of the CNET Instructor Computation process outlined in enclosure (3) shall maintain their instructor proficiency and shall, at the minimum, perform in instructional situations to meet peak student loads.

3. Cross-utilized courses, where instructors are cross-trained in more than one course, will be scheduled to minimize the over-lapping of classes. All courses will be scheduled to minimize the manpower requirements impact of peak instructional situations.

4. Master and Senior Chief Petty Officers may be identified as Division Officer in those cases where officer resources are not available.

5. Responsive training (not planned/programmed) may be staffed when supported by 3 years of documented historical data or written projected tasking.

6. Excess hours (residual) resulting from fractional instructor manpower requirements will be identified and utilized, where practical, for those situations where other duties requiring like skills (e.g., equipment maintenance, learning resource centers) are required.

7. Curriculum Instructional Standards Office (CISO) will be staffed with a small advisory cadre. Subject Matter Expert (SME) requirements are computed in each course application.

8. All mission essential tasking will be staffed.

    a. Collateral duties will not be staffed.

    b. Local initiatives (e.g., drill teams, plaque making, etc.) will not be staffed.

c. Tenant activities will not be staffed for services that are assigned to the host (central support) commands (e.g., public works/building maintenance, base audio/visual support, printing, etc.). Functions assigned to a host command will be staffed at that command.

d. Students not under instruction are an appropriate source of labor for meeting non-skilled manpower requirements.

e. The NAVEDTRAMETs will identify requirements and the type of labor most readily available.

f. A minimum cadre of U.S. Navy expertise will be retained in the activity for contractor taught courses to represent the Navy position in all transactions with contractor personnel. These requirements will normally be identified as Contracting Officer Representatives (CORs) in the organizational component in which the contracted course or courses reside.

g. Normally, Assistant or Deputy billets will not be written in manpower documents unless these requirements are supported by officially tasked and measured workload not identified elsewhere in their organizational component.

h. Department Master Chief Petty Officers will not be staffed unless the requirement is a product of the application of the NAVEDTRACOM Instructor Staffing Model.

**PREPARATION OF THE MASTER SCHEDULE (MS)
AND MASTER SCHEDULE SUMMARY (MSS)**

1. The MS shall be prepared in the format of Figures 1, 2, and 3 for all group-paced courses of the NAVEDTRACOM. MSs will be a continuing subject of audits, inspections, SMRDs, and management assistance visits.

a. An MS and its associated MSS are vital management tools benefiting both the school and higher echelons by providing the planned period-by-period subject matter for a course, time allocated to each subject, time specified for theory and laboratory instruction, detailed sequence of the instructional program, and the optimum student-to-instructor ratio for each period. Additionally, these are the basic documents from which student-to-instructor ratios and manhours are developed. The summarized ratios from the MS accurately displayed on the MSS enable computations and provide justification for instructor manpower requirements.

b. Commanding officers of Course Curriculum Model Managers (CCMMs) will ensure that the MS and MSS are forwarded to the CCA for approval. Additionally, the commanding officer of each training activity tasked to teach the course shall be provided a copy of the MS and MSS to be reviewed and retained as an internal scheduling/management document. Activities receiving approved MSs and MSSs from CCMM commands shall review and/or adjust the approved MSs and MSSs for applicability to their training facilities with consideration to space and equipment limitations. All changes to an approved course will be reflected on a revised MS and MSS. Revisions impacting on course length or instructor requirements will be forwarded by the revising command via the CCMM authority to the CCA for approval; the CCA shall forward the MSS to CNET for approval. The CCMM will ensure any deviation from the MS is properly documented and approved, and commanding officers will keep on file the written authority for exceptions and the approval authority.

2. Guidelines on specific factors affecting MSs:

a. Standard Technical Training Workweek (Students). MSs shall reflect 40 approved technical training periods.

b. Non-Technical Training Subjects. Approved non-technical training subjects scheduled outside of the 40-period (hour) technical training workweek will be included in the MS if technical training instructors are required to provide the training. A student-to-instructor ratio representing the maximum class size is appropriate. If the non-technical training is provided by

personnel other than technical training instructors, a ratio of "class size:0" should be indicated on the MS.

c. Graduation. If a formal graduation ceremony is conducted, it may be included in the MS not to exceed one period with a student-to-instructor ratio representing the maximum class size.

d. Command/Base Indoctrination. Should be accomplished prior to formally convening the class and shall not be included in the MS.

e. Field Day. Shall not be included in the MS.

f. Check In/Out Time. Shall not be included in the MS.

g. Written Tests. Should normally be accomplished at the ratio representing the optimum class size. Written testing periods should be labeled as "Written".

h. Performance Testing. Should normally be conducted at the optimum ratio with consideration of the factors of equipment, safety, and the training objective to be accomplished. Performance testing should be labeled as "Performance" in order to verify the need for variation in the student-to-instructor ratio.

i. Other. Individual medical and dental time, overseas interviews, ceremonies, administrative time, and command time not directly related to technical training shall not be included in the MS.

3. Sample MS. (Refer to Figure 1) The first column indicates the number of the lesson topic; the second column, the type of instruction (e.g., classroom, laboratory, field, shop, written test, performance test). The third column shows the sequential period number (e.g., a 3-week course will contain periods numbered 1 through 120. This minimum number of periods will increase if non-technical training is scheduled and technical training instructors conduct the training.). The fourth column contains a list of the lesson topics. The fifth column indicates the maximum student-to-instructor ratio that can be accommodated for each period (not the present ratio in use due to current number of instructors available or the current input plan). The sixth column will indicate bottleneck (parenthetical) ratios. The seventh column indicates curriculum hours per period, with a total at the end of the MS.

4. Course Bottlenecks in the MS. When equipment or space limits exist, situations can occur where only a portion of the class can advance through a period or unit of curriculum together. The

usual procedure to overcome such bottlenecks is to split the class; one group to receive the required curriculum period and the remainder of the class in a standby situation waiting to rotate through the bottleneck. In these cases, there may be more hours allocated for instruction than curriculum hours required. The total curriculum hours will then be less than the approved course length. Example: Maximum class size = 8. An approved curriculum contains a requirement to accomplish 2 hours of performance testing. One piece of equipment is available that will accommodate two students and one instructor. Two students will receive training; the six remaining students are in quiet study waiting their turn to rotate through the bottleneck.

(FIGURE 1)

SAMPLE MS

WEEK 1 (A-123-4567) Length of period: 50 minutes

	Topic No.	Type	Period	Lesson Topic Title	Ratio	Curriculum Hour
Day 1	1-10	Class	1	Valve Maintenance Program	25:1	1
		Class	2		25:1	1
	1-11	Class	3	Lube Oil Quality Management	25:1	1
		Class	4		25:1	1
		Class	5		25:1	1
	1-12	Class	6	Engineering Logs and Records	25:l	1
		Class	7		25:1	1
		Class	8		25:1	1
Day 2	1-13	Class	9	Ship Gage Calibration Program	25:1	1
		Class	10		25:1	1
	1-14	Class	11	3-M Inspections	25:1	1
		Class	12		25:1	1
	1-15	Class	13	BD of Insp 7 Surv. Inspections	25:1	1
	1-16	Class	14	Eng Space Mat'l Insp	25:1	1
	1-17	Class	15	Shpb'd Eng Test & Trials	25:1	1
	1-18	Class	16	Training Readiness	25:1	1
Day 3	1-19	Class	17	Fuel Oil Quality Management	25:1	1
		Class	18	(MOGAS and JP-5)	25:1	1
	1-20	Class	19	Fleet Modernization Program	25:1	1
		Class	20		25:1	1
	1-21	Class	21	Ship's Force Overhaul Mgt Sys	25:1	1
	1-22	Lab	22	Heat Stress Program	25:1(8:1)	1
		Lab	23		25:1	
		Lab	24		25:1	
Day 4	1-23	Class	25	Within-Crse Compt Test & Crit	25:1	1
		Class	26	Reduction Gear Inspections	25:1	1
		Class	27		25:1	1
	1-24	Class	28	Engineering Dept Security	25:1	1
		Class	29		25:1	1
	1-25	Lab	30	Fuel Oil Quality Management	25:1(8:1)	1
		Lab	31		25:1	
		Lab	32		25:1	
Day 5	1-26	Class	33	Post Casualty Maintenance	25:1	1
		Class	34		25:1	1
	1-27	Class	35	Hazardous Material Handling	25:1	1
		Class	36	and Storage	25:1	1
		Class	37		25:1	1
		Class	38		25:1	1
		Lab	39	Reduction Gear Inspections	25:3	1
		Lab	40	(Evaluation and Seminar)	25:3	1
				Total Curriculum Hours		36

NOTE: FOR THIS SAMPLE SCHEDULE, ONE CURRICULUM HOUR IS ACCOMPLISHED DURING TOPICS 1-22 AND 1-25. EIGHT STUDENTS ROTATE THROUGH THE LAB WITH REMAINING STUDENTS IN QUIET STUDY.

(FIGURE 2)

Classroom	Performance Testing Lab	
(6:0)	(2:l)	(Bottleneck ratio would be shown in column 6. This ratio would be shown twice to indicate two curriculum hours. See Figure 3.)

6:0 + 2:1 = 8:1 Student-to-instructor ratio would be shown in column 5.

(FIGURE 3)

The MS to display the data shown in Figure 2 would appear as follows:

1 TOPIC NUMBER	2 TYPE	3 PERIOD	4 TOPIC TITLE	5 RATIO	6 BOTTLENECK RATIO	7 CURR. HOUR
X	LAB	1	PERFORMANCE TEST	8:1	(2:1)	1
	LAB	2		8:1	(2:1)	1
	LAB	3		8:1		
	LAB	4		8:1		
	LAB	5		8:1		
	LAB	6		8:1		
	LAB	7		8:1		
	LAB	8		8:1		

Eight periods must be scheduled to permit each student, in groups of two, to accomplish 2 curriculum hours in the Laboratory completing a performance test.

5. In unique bottleneck situations where parenthetical ratios would have to be listed numerous times, an acceptable alternative to listing multiple parenthetical ratios is to show the ratio once, and a number outside the parenthesis to indicate the number of curriculum periods accomplished (e.g., (12:1) 8). In cases where students rotate through a bottleneck situation in increments of less than a full curriculum hour (e.g., 20 minutes), a decimal equivalent representing minutes can be placed outside the parenthesis (e.g., (12:1) .33) which represents 20 minutes, or .50 representing half an hour.

6. An accurate MS will:

a. Show the correct student-to-instructor ratio.

b. Show the "real life" bottleneck (parenthetical) ratio.

c. Show the curriculum hours accomplished.

d. Yield the correct number of instructor contact hours.

GUIDELINES FOR PREPARATION OF THE MSS

1. The primary purpose of the MSS is to provide a uniform title/cover sheet for each MS and to properly summarize certain detailed data contained in the body of the MS. Experience has shown if no formal, standardized method is used to summarize periods, ratios, etc., for each course, a wide range of errors will appear in data reported, instructor computations, and other documents. Such errors have included:

a. Entry of incorrect number of periods at each ratio.

b. Ratios that differ from those detailed in the MS.

c. Ratio periods that do not add to total course length in hours.

d. Training workweeks that do not meet CNET minimum standards.

e. Failure to show actual instruction time and length of break time per period of instruction.

f. Failure to identify course title, Course Identification Number (CIN), Course Data Processing (CDP) Code, or training activity on the MS.

2. A number of important secondary purposes exist for the MSS:

a. To reduce the requirement for copies of the MS, a copy of the Summary will replace a copy of the entire MS by serving as both a summary and a title/cover sheet.

b. To ensure the most current, certified MS is on file as a planning instrument.

c. To identify the interrelationship with other courses (i.e., which courses have cross-utilized resources).

d. To provide statements of justification.

e. To provide a vehicle for summarizing data on self-paced courses (where MSs do not apply).

3. An MSS is required as a cover for the MS of each group-paced course. In addition, the Summary form should be used to record information of self-paced courses, even though no MS exists. The following specific information is required:

a. Course Data

DATE. Date MSS is prepared.

ACTIVITY/DEPT/DIV. Self-explanatory.

COURSE. NITRAS short title. Type training (AP, A1, A2, C1, C2, F1, F2, etc.) should follow the short title.

CIN. Course Identification Number

CDP. Course Data Processing code.

INSTRUCTIONAL PERIODS PER WEEK. Class periods (hours) scheduled per week excludes the meal period. There will normally be 8 instructional periods per day, or 40 periods per week, and will include all scheduled technical, and where applicable, all non-technical training periods, in accordance with the definitions provided in enclosure (4).

MAXIMUM CLASS SIZE. The class size on which the MS is based. This will normally be the maximum class size that can be convened in consideration of space, equipment, and course length restrictions.

INSTRUCTOR CROSS-UTILIZATION. List other courses which instructors of this course also teach, as described in enclosure (1), paragraph 3.

b. Summary

S:I RATIOS. When summarizing the total number of periods at each student-to-instructor ratio, it should be recognized that this data is used to compute instructor requirements. The total number of periods should agree with total periods contained in the MS. Normal periods and bottleneck periods will be reported separately even if ratios are the same. To explain this procedure, Figure 4 (CNET 1540/12) displays a summary of the MS contained in Figure 1. Curriculum hours shall be annotated under "CURRICULUM HOURS" column for each ratio for ease in summation of Total Course Hours and Total Curriculum Hours.

BOTTLENECK PERIODS. The parenthetical ratio is entered on the numbered line corresponding to the line entry in the S:I RATIOS and PERIODS section. The sample MSS, Figure 4, shows that 6 hours of instruction are required to accomplish 2 curriculum hours.

CERTIFIED CURRENT. Date of last review by phase-and-course supervisor/manager or other competent authority. Addi-

tionally, variations and/or adjustments to the currently approved course that affect course length or instructor requirements must be approved in accordance with the provisions of this instruction.

JUSTIFICATION FOOTNOTE. On the reverse of the form, provide a brief justification as to why ratios are reduced. Example: "The XYZ equipment physically allows only four people to work on it simultaneously. To ensure student safety, students require constant supervision on this high voltage electrical equipment. One instructor is necessary for each such group of four students."

(FIGURE 4)

MASTER SCHEDULE SUMMARY
CNETINST 5310.4E refers

DATE: _____

ACTIVITY _____ DEPT/DIV _____

A. COURSE DATA

COURSE _____ CIN _____ CDP _____
(NITRAS Short Title/Type Training)

INSTRUCTIONAL PERIODS PER WEEK 40 MAXIMUM CLASS SIZE 25

INSTRUCTOR CROSS-UTILIZATION (SHORT TITLE/CIN/CDP)

_____ _____ _____

_____ _____ _____

_____ _____ _____

B. SUMMARY

	S/I RATIOS	PERIODS	BOTTLENECK PERIODS PARENTHETICAL RATIO	CURRICULUM HOURS
1.	25:1	32		32
2.	25:1	6	8:1	2
3.	25:3	2		2
4.				
5.				
6.				

TOTAL COURSE HOURS: 40 TOTAL CURRICULUM HOURS: 36

CERTIFIED CURRENT: _____
(DATE)

_____
COMMAND/SIGNATURE/TITLE DATE

CCMM APPROVAL:

_____
COMMAND/SIGNATURE/TITLE DATE

CCA APPROVAL:

_____
COMMAND/SIGNATURE/TITLE DATE

_____
CNET/SIGNATURE/TITLE DATE

JUSTIFY ANY RATIOS OF LESS THAN 25:1 (USE THE REVERSE SIDE OF THIS FORM)

(Revisions to course impacting on course length or instructor requirements will be forwarded by the CCA to CNET for approval.)

CNET 1540/12 (Rev. 7-99)

CRITERIA AND PROCEDURES FOR COMPUTATION OF INSTRUCTION REQUIREMENTS

1. Introduction

a. The function of instruction in the NAVEDTRACOM is included in recruit, basic, advanced, specialized, functional, fleet, and officer training. Instructor staffing is the foundation of any training program. In keeping with the philosophy of operating schools/courses at maximum efficiency and minimum cost, standardized criteria and procedures have been established for computing the minimum number of instructors required for efficient instruction.

b. The method described herein is based upon contact periods of instruction. These periods, in turn, are generated from the flow of students and the optimum student/instructor ratios for each of the instructional situations in the MS. An important feature is that the establishment of optimum ratios is independent of the actual or planned number of students. This permits flexibility to change inputs without changing ratios with the assurance that varied new input rates will be automatically based on optimum teaching situations. This feature will also contribute to ease of automation to produce requirements for a wide range of planned student inputs, enabling quick response to program changes.

2. General Factors Which Affect Instructor Requirements. There are a number of factors which affect instructor requirements and which are common to all schools. These are: The annual planned student input; the planned number of class convenings; the length of the course; the subject matter content of the course; and the type of equipment used in the course. Additional factors are the standards for the instructional workweek of both students and instructors. The quantity of instructors and their associated rates/ratings and Navy Enlisted Classifications (NECs) must be adequate to efficiently cover the subject matter for each topic in the time allotted and to provide efficient and safe instruction; however, efforts should be made to minimize instructor requirements while maintaining efficiency. This will be accomplished by ensuring maximum student/instructor ratios and optimizing class size and convening frequency. The availability and configuration of space are factors in these decisions.

3. Special Guidance. The following areas require special consideration:

a. CISO Billets. Full time billet requirements for this

function are outside the scope of this instruction and are not derived from the instructor computation procedure; however, SME manhours are computed in the instructor computation process and are in the instructor allowance identified for each course of instruction.

b. Equipment Maintenance Billets. These billets are not derived from contact hours and are outside the scope of this instruction. Maintenance that is incidental to instruction and must be performed by instructors is addressed in the "related duties" Instructor Preparation and Related Duties (IPRD) factor, or stated as a ratio to meet curriculum requirements. Full time maintenance billets will not be instructor designated.

c. Cross-Utilization of Instructors. Cross-utilization is a desirable means to reduce monotony of instructor duties; provide valuable, varied experience; reduce instructor requirements for short or irregular courses; and provide back-ups where cross-utilization is feasible (normally based on rate/rating compatibility and class scheduling). Group these courses and compute each course individually but do not round the total for each course; add the total for all courses within the grouping and round only the final result.

d. Responsive Training. This workload, when supported by 3 years of documented historical data or written projected tasking, will be included in planned input/class convenings and considered workload in instructor computations.

e. Computation Forms. Commanding officers of training activities shall ensure a current instructor requirements computation form is maintained for each course of instruction. These computations shall be updated to address revisions in course length, periods and ratios, frequency, and/or class size that reflect changes in instructor requirements.

4. Computation. CNET 5311/1 shall be used to compute instructor requirements. This format and sample computation are contained in Figure 5. The procedures to be followed in completing the instructor computation form are:

a. Record school/course information in appropriate blocks. Quota/planned class size is the quotient of annual student input divided by number of classes per year. Any fraction at this point will be rounded to the next highest whole number (101 divided by 10 = 10.1 = 11).

b. Enter the summation of periods at each student/instructor ratio from the MSS Sheet. The sum of all periods should equal the total contact periods for the course.

c. Step 1. Derive the number of required class sections for each ratio. For example, a planned class size of 25:5 requires a class to be divided into five sections. Each section will be assigned an instructor.

d. Step 2. Multiply the number of instructors for each ratio by the periods for that ratio to determine the total instructor contact periods generated for each ratio.

e. Step 3. Add the instructor contact periods derived above from each ratio to determine the total number of instructor periods required to teach one class.

f. Step 4. Multiply result of step 3 by annual planned number of classes to obtain annual instructor contact period base.

g. Step 5. Multiply annual instructor contact period base by 1.25 to obtain annual instructor manhours. Carry results to two decimal places.

h. Step 6. Multiply annual instructor manhours by 1.10 to provide manhours for instructor supervision. This provides the total instructor/supervisor manhours requirement for the course. Carry results to two decimal places.

i. Step 7. For those courses for which the training activity is assigned CCMM responsibility, multiply approved curriculum hours by 3.34 to provide annual manhours for curriculum support. For some courses, approved curriculum hours will not equal the number of hours contained in the MS. Carry the results to two decimal places.

j. Step 8. To compute the annual total requirement, add the results of steps 6 and 7. Carry the result to two decimal places.

k. Step 9. Divide the total annual manhour requirement by 1867. This identifies the total manpower billets required to conduct the course.

5. Qualitative Distribution. No distribution by rates/NECs/designators is provided by the formula, since its purpose is to establish quantitative requirements. Qualitative distribution will be identified on SMRs. Listing the desired qualitative breakdown on the reverse of the form is optional.

6. Variations from the Basic Instructor Computation Process. If the total requirements as computed can be definitely and quantitatively established to be insufficient to permit efficient

course operation, workload justification for additional requirements shall be provided in detail on the reverse of the computation form and the adjusted number shown on the last (total instructor/supervisor requirement) line on the face of the form. Justification should be in terms of exact duties and instructor hours generated. Remedial training is considered a duty watch; therefore, these hours will not be included in additional justification statements.

(FIGURE 5)

INSTRUCTOR COMPUTATION

ACTIVITY	COURSE SHORT TITLE	CIN	CDP	DATE PREPARED
NTTC Training	Student	A-123-4567	8910	I Oct 1999

APPROVED CURRICULUM HOURS	TOTAL CONTACT PERIODS	COURSE LENGTH (WEEKS	GROUP-PACED (L)/SELF-PACED (P)
270	320	8	L

QUOTA (PLANNED CLASS SIZE)	ANNUAL INPUT	NO. OF CLASSES PER YR	PREPARED BY
25	1250	50	

CURRICULUM BREAKDOWN		STEP I CLASS SECTIONS	STEP 2 INSTRUCTOR CONTACT PERIODS (PERIODS X CLASS SECTIONS)
RATIOS	PERIODS		
25:1	150	1	150
25:3	89	3	267
25:5	81	5	405

STEP 3	TOTAL INSTRUCTOR PERIODS PER CLASS	82

		ITEM
4	TOTAL INSTRUCTOR PERIODS PER CLASS X NUMBER OF CLASSES PER YEAR	ANNUAL INST CONTACT PERIOD *BASE* 41 100
5	A-NNUAL INSTRUCTOR CONTACT PERIODS X 1.25 (IPRD)	ANNUAL INSTR MANHOURS 51 375
6	ANNUAL INSTRUCTOR MANHOURS X 1. 10 (SUPERVISION)	ADJUSTED INSTR MANHOURS 56512 50
7	NOTE: IF NOT CCMM, GO TO STEP 8 CURRICULUM HOURS X 3.34	ANNUAL CCMM MANHOURS 901 SO
8	TO TOTAL ADD STEPS (6 PLUS 7)	TOTAL ANNUAL MANHOURS 5741430
9	TOTAL ANNUAL MANHOURS DIVIDED BY 1867	INSTRUCTORS REQUIRED 3075

INSTRUCTOR REQUIREMENTS BY TYPE

NAVY	MARINE	CIVILIAN	OTHER	TOTAL
30.75	0	0	0	30.75

CNET 53 1 1/1 (Rev. 7-99)

DEFINITIONS

1. Class Sections. Division of a convening quota into groups according to the student/instructor ratio required for an instructional situation.

2. Contact Period. A scheduled period (60 minutes) of instruction. This refers to periods of curriculum time devoted to instruction, including breaks, but excluding administrative time, lunch, medical and dental appointments/sickcall.

3. Curriculum Hour. The minimum number of hours of formal, approved training a student receives to complete the total course of instruction. These hours do not include "bottleneck" hours during which the student is in quiet study while the instructor works with other students in a lab, etc.

4. Contingent Unavailable. The number of personnel at any given time who are not available for instructor duty. Allowance for Contingent Unavailable is made by utilizing the CNET standard productive work year of 1867 hours.

5. Instructors. Those personnel whose primary duties are instructing in classroom, shop, laboratory, line, or field situations in topics pertinent to the school, or supervising instruction/testing/evaluation/curriculum development in the technical speciality of the course. This definition covers all instructor personnel--officers, enlisted, and civilians.

6. Instructor Contact Hours. The total number of hours provided by instructors and required to teach a course once.

7. Instructor Contact Workweek. The standard (normal) instructor teaching load is 30 contact periods per week of instruction, including lecture, and lab/shop contact time. This normally will be 6 platform or instructional periods each day, with the remaining periods devoted to IPRD. Personnel not available for duty instructor requirements are separately identified in the formula using a derivative of the standard workweek discussed in reference (a).

8. Non-technical Training Subjects. Training requirements not essential to technical skill development are considered non-technical training subjects. These subjects include General Military Training (GMT) and Physical Training (PT) that is not a curriculum requirement.

9. Optimum Student/Instructor Ratio. That ratio of students to instructors which is the highest possible without serious detri-

ment to the quality of training.

10. Practical Work Periods. Contact periods involving actual or simulated job experiences. This includes shop, line, field, or laboratory instruction.

11. Practical Work Ratios. Laboratory, shop, line, or field instruction ratios will be based on a review of each topic in the MS to determine the optimum (highest) ratio of students per instructor in consideration of the type of equipment, safety, and teaching effectiveness for the particular teaching situation.

12. Quota. The planned number of students scheduled to enter instruction on established convening dates.

13. Residual Hours. The difference between the total hours the instructors are available to be on the podium annually and the course's annual instructor contact hours. These hours are considered available for reprogramming to accomplish other tasking.

14. Standard Classroom Ratio. A student/instructor ratio of 25:1 is the planning standard for formal theory/classroom periods. This ratio represents an optimum and has been validated as a planning factor through years of experience in civilian and military schools. This standard is flexible, as space configurations, setbacks, or other factors dictate variation. If these constraints do not allow a ratio of 25:1, the ratio should be established as the highest possible ratio without serious detriment to the quality of instruction, and limited by space and/or equipment.

15. Standard Technical Training Day (Students). The normal scheduled technical training day shall consist of 8 hours (periods) of approved technical training topics exclusive of meal hours.

16. Standard Technical Training Workweek (Students). The normal scheduled technical training workweek for students shall be 40 hours (periods) of approved technical training topics. Time allocated to non-technical training requirements, such as GMT, will be in addition to this requirement. Greater amounts of either technical or non-technical training outside the prescribed workweek may be scheduled if required. Approved non-technical training subjects scheduled outside the 40-hour (period) technical training workweek will be included in the MS and considered workload in instructor requirements computations if technical training instructors are required to do the training. Physical training and medical or dental time directly related to or required for the technical course completion, or required as a prerequisite or follow-on technical training, may be included in the

MSs and considered workload in instructor requirements computations only if technical training instructors not in a duty or watch status are required to participate in those evolutions.

17. Standard Training Period. The normal training period shall be 60 minutes, whether or not break time is included. Ideally, a period should consist of 50 minutes of technical instruction and a 10-minute break; however, local training situations or curriculum requirements may preclude strict adherence to this ideal. When variation to this policy is required, the MS should be appropriately adjusted and approved.

18. Standard Training Workweek (Staff). The normal scheduled workweek for instructors and support personnel shall be 40 hours exclusive of duty status (watch) requirements and meal hours.

19. Student/Instructor Ratio. A numerical representation describing the number of students for each instructor required to teach a topic.

20. Technical Training. For the purpose of this instruction "technical training" is defined as both technical and academic instruction.